

**Navy Advancement Center**

Web site: <http://www.advancement.cnet.navy.mil>

---

# **Advancement Handbook for Aviation Boatswain's Mate, Launching & Recovery Equipment**

**This Advancement Handbook was last revised on 15 APRIL 1999.**

## PREFACE

The purpose of the Advancement Handbook is to help you focus your preparation for Navywide advancement-in-rating examinations. The bibliographies (BIBs) together with this handbook form a comprehensive examination study package. Since this handbook provides skill and knowledge components for each paygrade of the ABE rating, it helps you concentrate your study on those areas that may be tested. This feature will help you get the most out of your study time.

Each page in Parts 1 through 4 of this Advancement Handbook presents general skill areas, specific skill areas, the knowledge factors associated with each skill area, the pertinent references that address each skill, and the subject areas that may be covered on the examination. The skill statements describe the skills you are expected to perform for each paygrade. The skill statements are cumulative; that is, you are responsible for the skills for the paygrade you are competing for, your present paygrade, and all paygrades below.

Although this handbook is very comprehensive, it cannot cover all the tasks performed in the rating. As a result, the advancement examinations may contain questions more detailed than described in the “*Exam Expectations*” section of the skill areas.

Remember that advancement competition is keen, so your keys to advancement include not only comprehensive advancement examination study but also sustained superior performance.

Prepared by  
Navy Advancement Center Department,  
Naval Education and Training Professional  
Development and Technology Center

# CONTENTS

PARTS	PAGE
1 Advancement Handbook for ABE3 .....	1-1
2 Advancement Handbook for ABE2 .....	2-1
3 Advancement Handbook for ABE1 .....	3-1
4 Advancement Handbook for ABEC.....	4-1
Appendix 1    References Used in This Advancement Handbook .....	A-1

## Part 1

### Advancement Handbook for ABE3

## Advancement Handbook for ABE3

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Rig the barricade
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Barricade webbing systems</li> <li>• Barricade webbing components</li> <li>• Barricade rigging and de-rigging procedures</li> <li>• Barricade stanchions components</li> <li>• Barricade stanchions components operations</li> <li>• Barricade power package components</li> <li>• Barricade power package operations</li> <li>• Deck ramp location</li> <li>• Deck ramp locking procedures</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1, Sections 31, 32, 33, and 34 (NAVAIR 51-5BBA-1.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 004 and 012 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 037 and 038 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 31, 32, 33, and 34 (NAVAIR 51-5BCA-1.1)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 4 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of barricade rigging to include the barricade webbing installation, barricade stanchions and control arrangement, barricade power package components and operations and deck ramps. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	---

## Advancement Handbook for ABE3

General ABE <i>Skill Area</i>	<b>Recovery Systems operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Conduct pre-and post-operational inspection on recovery systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Conditions of readiness</li> <li>• Arresting engine components</li> <li>• Arresting engine fluid level</li> <li>• Arresting engine operating pressure</li> <li>• Arresting engine control panel components</li> <li>• Anchor damper components</li> <li>• Sheave damper components</li> <li>• Sheave damper fluid level</li> <li>• Sheave damper operating pressure</li> <li>• Automatic lubrication components</li> <li>• Deckedge components</li> <li>• Deck gear arrangement</li> <li>• Wire support adjustment procedures</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 003, 013, 014, 015, 016, 017, 018, and 019 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 020, 021, 023, 024, 025, 026, 027, 028, 029, 031, And 032 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 2, 4, 12, 14, 15, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of arresting gear pre-and post-operational inspection to include questions on the arresting engine components, fluid level, and operating pressure, anchor damper and sheave damper components, fluid level, and operating pressures, automatic lubrication system, deckedge and flight deck. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	---



## Advancement Handbook for ABE3

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform arresting gear operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Arresting engine operating procedures</li> <li>• Arresting engine CRO Valve drive system</li> <li>• Anchor damper operating procedures</li> <li>• Sheave damper operating procedures</li> <li>• Deckedge operating procedures</li> <li>• Primary fly operating procedures</li> <li>• Hook runner operating procedures</li> <li>• Crossdeck pendant inspection procedures</li> <li>• Purchase cable inspection procedures</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 003, 004, 013, 014, 015, 016, 017, 018, and 019 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 020, 021, 022, 023, 024, 025, 027, 028, 029, 031, 032, and 033 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 1, 3, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30 (NAVAIR 51-5BCA-1.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Aircraft Launch And Recovery Operations Manual, Section 4 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of arresting gear operation procedures to include the arresting engine, anchor damper, sheave damper, deckedge, primary fly, hook runner, crossdeck pendant and purchase cable inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE3

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Use the Maintenance Material Management (3-M) system to perform maintenance
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Verification of Maintenance Requirement Card (MRC)</li> <li>• Verification of record of change page</li> <li>• Verification of List Of Effective Pages (LOEP)</li> <li>• Verification of Maintenance Index Page (MIP)</li> <li>• Use of Maintenance Requirement Cards (MRCs), Equipment Guide Lists (EGLs), and Tagout Guide Lists (TGLs)</li> <li>• Use of Hazardous Material User Guide (HMUG)</li> <li>• Identify Personal Protective Equipment (PPE) used when working with hazardous material</li> <li>• Use of Cycle, Quarterly, and Weekly Planned Maintenance System (PMS) schedules</li> <li>• Recording of completed maintenance actions</li> <li>• Use of Material Safety Data Sheet (MSDS)</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Package HMWS (NAVAIR 51-5BBA-2.1)</li> <li>• Ships' Maintenance And Material Management (3-M) Manual, Chapters 3 and 4 (OPNAVINST 4790.4)</li> <li>• Navy Occupational Safety and Health (NAVOSH) Program Manual For Forces Afloat, Volume 1, Chapter B3 (OPNAVINST 5100.19)</li> </ul>

	<ul style="list-style-type: none"> <li>• Navy Occupational Safety and Health (NAVOSH) Program Manual For Forces Afloat, Volume 2, Chapters C12 and C23 (OPNAVINST 5100.19)</li> <li>• Navy Occupational Safety And Health (NAVOSH) Program Manual, Chapter 7 (OPNAVINST 5100.23)</li> <li>• Hazardous Material User Guide</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of the 3-M system to include MRCs, MIPs, EGLs, TGLs, Cycle, Quarterly, and Weekly schedules. You can also expect questions about the use, storage, and disposal of hazardous material, including HMUG, MSDS, safety precautions, PPE, and storage containers. The questions may be of a general nature or specific to a type of procedure.</p>

## Advancement Handbook for ABE3

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate catapult
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Components of catapult steam system</li> <li>• Operation of catapult steam system</li> <li>• Components of catapult launching engine system</li> <li>• Operation of catapult launching engine system</li> <li>• Component of catapult retraction engine and drive system</li> <li>• Operation of catapult retraction engine and drive system</li> <li>• Components catapult hydraulic system</li> <li>• Operation of catapult hydraulic system</li> <li>• Components of catapult lubrication system</li> <li>• Operation of catapult lubrication system</li> <li>• Components of catapult bridle tensioning system</li> <li>• Operation of catapult bridle tensioning system</li> <li>• Components of catapult control system</li> <li>• Operation of catapult control system</li> <li>• Components of Digital Endspped Indicator System (DESI)</li> <li>• Operation of Digital Endspped Indicator System (DESI)</li> <li>• Components of nose gear launch system</li> <li>• Operation of nose gear launch system</li> <li>• Operation of catapult weight board</li> <li>• Operation of aircraft holdback assemblies</li> <li>• Types of aircraft holdback assemblies</li> <li>• Types of catapult tension bars</li> <li>• Sequence of catapult operations</li> <li>• Catapult operating procedures</li> <li>• Catapult hangfire procedure</li> </ul>

	<ul style="list-style-type: none"> <li>• Use of catapult slot seals</li> <li>• Use of catapult slot button</li> </ul>
<p><i>References you should study to gain the knowledge you need to perform this skill:</i></p>	<ul style="list-style-type: none"> <li>• CV NATOPS Manual, Chapter 4 (NAVAIR 00-80T-105)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Packages 008, 009, 010 and 011 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 014 and 015 (NAVAIR 51-15ABB-4.2)</li> <li>• Organizational/ Intermediate Maintenance With Illustrated Parts Breakdown, Capacity Selector Valve, Work Packages 003 and 004 (NAVAIR 51-15ABE-1)</li> <li>• Organizational/ Intermediate Operation, Service, And Maintenance Instructions With Illustrated Parts Breakdown, Digital Endspeer Indicator System, Work Packages 003 and 005 (NAVAIR 51-15ABE-2)</li> <li>• Operation, Service, And Overhaul Instructions With Illustrated Parts Breakdown, Catapult Power Plant Pump, Section 4 (NAVAIR 51-25-3)</li> <li>• Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0, Sections 1, 2, and 3 (NAVAIR 51-25-19)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 3 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of catapult operation to include operating procedures, sequence of operations, hangfire procedures, the use of slot button and slot seals, types of holdback assemblies, and tension bars. You can also expect questions on the components of the catapult steam system, launching engine system, hydraulic system, lubrication system, bridle tensioning system, control system, DESI, nose gear launch system, and the retraction engine and drive systems. These questions may be of a general nature or specific to a system or procedure.</p>
---	--

## Advancement Handbook for ABE3

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain Jet Blast Deflectors (JBD) Systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• JBD operating procedure</li> <li>• Procedure for hydraulic failure emergency lowering</li> <li>• Procedure for electrical failure emergency lowering</li> <li>• Operating gear components</li> <li>• Operation of operating gear assembly</li> <li>• Cooling water system components</li> <li>• Operation of cooling water system</li> <li>• Hydraulic system components</li> <li>• Operation of hydraulic system</li> <li>• Electrical control system components</li> <li>• Operation of deckedge and auxiliary control panels</li> <li>• Operation of portable electrical control box</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operation, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Jet Blast Deflector, Mark 7 Mod 0, Mark 7 Mod 1 And Mark 7 Mod 2, Sections 2, 3, 4, 5, 6, and 7 (NAVAIR 51-70-3)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 3 (COMNAVAIRLANTINST 13800.3/COMNAVAIRPACINST 1300.9)</li> </ul>



<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of JBD systems and components to include operating procedures and emergency lowering procedures. You can also expect questions on the operating gear assembly operation and components, cooling water system operation and components, hydraulic system operation and components, and electrical control system operation and components. The questions may be of a general nature or specific to a system or procedure.</p>
---	--

## Advancement Handbook for ABE3

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain Retraction Engine components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Retraction engine hydraulic fluid flow</li> <li>• Drum assembly operation</li> <li>• Hydraulic motor operation</li> <li>• Screw and traverse carriage operation</li> <li>• Cable tensioners operations</li> <li>• Retraction engine manifold components</li> <li>• Retraction engine dump valves operation</li> <li>• Sheaves operation</li> <li>• Grab operation</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 5 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Packages 008 and 009 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Packages 062, 063, 064, 065, 066, 067, 071, 072, 073, 074, 075, 079, 080, 082, and 085 (NAVAIR 51-15ABB-4.3)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 5 (NAVAIR 51-15ABC-2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 6 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of the rotary retraction engine to include the drum, hydraulic motor, cable tensioners, screw, and traverse carriage. You can also expect questions on the retraction engine dump valves, cams, electrical switches, and manifold components. The questions may be of a general nature or specific to a component.</p>

## Advancement Handbook for ABE3

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Order a part through the supply system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Information required to complete a requisition</li> <li>• Forms used for ordering parts</li> <li>• Reports used for tracking supply requisitions</li> <li>• Advice codes used on requisitions</li> <li>• Status codes for outstanding requisitions</li> <li>• Procedures for processing, reviewing, and tracking supply requisitions</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Launch and Recovery Equipment Maintenance Program (ALREMP), Chapter 10 (OPNAVINST 4790.15)</li> <li>• Naval Supply Procedures, Volume I, Afloat Supply , Chapters 2 and 3 (NAVSUP P-485)</li> <li>• Naval Supply Procedures, Volume II, Supply Appendices, Appendixes 1 and 2 Chapters 2 and 3 (NAVSUP P-485)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about filling out a supply requisition, tracking supply request, including information contained on a requisition, requisition forms, reports for requisition tracking, priority codes, advice codes, status codes, and procedures for processing, reviewing, and tracking supply requisitions. The questions may be of a general nature or specific to a procedure.

## Advancement Handbook for ABE3

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform catapult pre-and post-operational inspection
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Components of catapult steam system</li> <li>• Operation of catapult steam system</li> <li>• Steam system pressures</li> <li>• Components of catapult launching engine system</li> <li>• Operation of catapult launching engine system</li> <li>• Launching engine pre-charges and operating pressures</li> <li>• Component of catapult retraction engine and drive system</li> <li>• Operation of catapult retraction engine and drive system</li> <li>• Retraction engine pre-charge and operating pressures</li> <li>• Components of catapult hydraulic system</li> <li>• Operation of catapult hydraulic system</li> <li>• Hydraulic system operating pressure</li> <li>• Components of catapult lubrication system</li> <li>• Operation of catapult lubrication system</li> <li>• Components of catapult bridle tensioning system</li> <li>• Operation of catapult bridle tensioning system</li> <li>• Bridle tensioning system pre-charge and operating pressure</li> <li>• Components of catapult control system</li> <li>• Operation of catapult control system</li> <li>• Components of Digital Endspeer Indicator System (DESI)</li> <li>• Operation of Digital Endspeer Indicator System (DESI)</li> <li>• Components of nose gear launch system</li> </ul>

	<ul style="list-style-type: none"> <li>• Operation of nose gear launch system</li> <li>• Nose gear launch pre-charge and operating pressure</li> <li>• Sequence of catapult operations</li> <li>• Catapult operating procedures</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Packages 008, 009, and 010 (NAVAIR 51-15ABB-4.1)</li> <li>• Organizational/ Intermediate Maintenance With Illustrated Parts Breakdown, Capacity Selector Valve, Work Packages 003 and 004 (NAVAIR 51-15ABE-1)</li> <li>• Organizational/ Intermediate Operation, Service, And Maintenance Instructions With Illustrated Parts Breakdown, Digital Endspeed Indicator System, work packages 003 and 005 (NAVAIR 51-15ABE-2)</li> <li>• Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0, Sections 1, 2, and 3 (NAVAIR 51-25-19)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of catapult pre-and post-operation to include operating procedures, sequence of operations, dynamometers and creep. You can also expect questions on the components, operation, and pre-charges of the catapult steam system, launching engine system, hydraulic system, lubrication system, bridle tensioning system, control system, DESI, nose gear launch system, and the retraction engine, and drive systems. These questions may be of a general nature or specific to a system or procedure.</p>

## Advancement Handbook for ABE3

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor trough heating and steam smothering system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Trough heating system schematic</li> <li>• Steam smothering system schematic</li> <li>• Steam smothering control stations</li> <li>• Nominal cylinder elongation for C-13 mod 0 catapults</li> <li>• Nominal cylinder elongation for C-13 mod 1 catapults</li> <li>• Nominal cylinder elongation for C-13 mod 2 catapults</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 010 (NAVAIR 51-15ABB-4.1)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about when and where to activate steam smothering, thermal expansion of the launching engine power cylinders for the different type of catapults. The questions may be of a general nature or specific to a catapult or system.</p>
---	---



## Part 2

### Advancement Handbook for ABE2

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate emergency recovery equipment
Knowledge you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Barricade webbing systems</li> <li>• Barricade webbing components</li> <li>• Barricade rigging and de-rigging procedures</li> <li>• Barricade stanchions components</li> <li>• Barricade stanchions components operations</li> <li>• Barricade power package components</li> <li>• Barricade power package operations</li> <li>• Emergency recovery equipment pre/post operation procedures</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1, Sections 31, 32, 33, and 34 (NAVAIR 51-5BBA-1.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 004 and 012 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 037 and 038 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 31, 32, 33, and 34 (NAVAIR 51-5BCA-1.1)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 4 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of the emergency recovery equipment to include barricades installations, barricade webbing assembly, and inspection, webbing shelf life, multiple release straps arrangement, barricade stanchions, stanchions control, barricade power package components, and operations. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	---

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform arresting gear operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Arresting engine operating procedures</li> <li>• Arresting engine drive system</li> <li>• Anchor damper operating procedures</li> <li>• Sheave damper operating procedures</li> <li>• Deckedge operating procedures</li> <li>• Primary fly operating procedures</li> <li>• Hook runner operating procedures</li> <li>• Crossdeck pendant inspection procedures</li> <li>• Purchase cable inspection procedures</li> <li>• Conditions of readiness</li> <li>• Arresting engine components</li> <li>• Arresting engine fluid level</li> <li>• Arresting engine operating pressure</li> <li>• Arresting engine control panel components</li> <li>• Anchor damper components</li> <li>• Sheave damper components</li> <li>• Sheave damper fluid level</li> <li>• Sheave damper operating pressure</li> <li>• Automatic lubrication components</li> <li>• Deckedge components</li> <li>• Deck gear arrangement</li> <li>• Wire support adjustment procedures</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 003, 004, 013, 014, 015, 016, 017, 018, and 019 (NAVAIR 51-5BBA-2.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 020, 021, 022, 023, 024, 025, 027, 028, 029, 031, 032, and 033 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 1, 3, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30 (NAVAIR 51-5BCA-1.1)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 4 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of arresting gear operations to include questions on the arresting engine, anchor damper, sheave damper, deckedge, primary fly, hook runner, crossdeck pendant, and purchase cable inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Transfer arresting gear hydraulic fluid
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Fluid stowage system</li> <li>• Fluid reclamation system</li> <li>• Fluid replenishing system</li> <li>• Replenishing arresting engine fluid</li> <li>• Blowing down arresting engine fluid</li> <li>• Filling the arresting engine fluid stowage tank</li> <li>• Transferring fluid from arresting engine fluid stowage tank to the arresting engine</li> <li>• Transferring fluid from arresting engine to the arresting engine fluid stowage tank</li> <li>• Transferring fluid from the reclamation system to the arresting engine fluid stowage tank</li> <li>• Transferring fluid from the arresting engine fluid stowage tank to sheave damper fluid stowage tank</li> <li>• Transferring fluid from sheave damper stowage tank to arresting engine fluid stowage tank</li> <li>• Transferring fluid from the sheave damper stowage tank to the sheave damper accumulator</li> <li>• Transferring fluid from the sheave damper accumulator to the sheave stowage tank</li> <li>• Use of Hazardous Material User Guide (HMUG)</li> <li>• Personal protective equipment when working with hazardous material</li> <li>• Use of Material Safety Data Sheets (MSDS)</li> </ul>

<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages HMWS, 008, and 013 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 29 (51-5BCA-1.1)</li> <li>• Navy Occupational Safety and Health (NAVOSH) Program for Forces Afloat, Volume 1, Chapter B3 (OPNAVINST 5100.19)</li> <li>• Navy Occupational Safety and Health (NAVOSH) Program for Forces Afloat, Volume 2, Chapters C12 and C23 (OPNAVINST 5100.19)</li> <li>• Navy Occupational Safety And Health (NAVOSH) Program Manual, Chapter 7 (OPNAVINST 5100.23)</li> <li>• Hazardous Material User Guide (HMUG)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of transferring fluid to include identification of valves to open and close, transfer of fluid to and from the arresting engine, transfer of fluid to and from the sheave damper, and transfer of fluid from the reclamation tank. The questions may be of a general nature or specific to a system or procedures.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair arresting gear engine control and control panel components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Weight selector operations</li> <li>• Constant Runout Valve (CROV) motor unit</li> <li>• Removal and installation of CROV motor unit</li> <li>• Removal and installation of torque limit switch</li> <li>• Adjustment of torque limit switch</li> <li>• Removal and installation of geared limit switch</li> <li>• Adjustment of geared limit switch</li> <li>• Removal and installation of the fluid temperature thermometer</li> <li>• Removal and installation of pressure gauges</li> <li>• Disassembly and repair of cartridge type globe valve</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 022 and 025 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 21 and 23 (NAVAIR 51-5BCA-1.1)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of arresting gear engine control and control panel to include the CROV motor unit, torque, and geared limit switches, thermometer, pressure gauges, and cartridge type globe valves. The questions may be of a general nature or specific to a type of equipment or procedure.



## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair arresting gear power package and controls
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Power package operations</li> <li>• Preparation for use</li> <li>• Securing procedures</li> <li>• Draining and filling the power package stowage tank</li> <li>• Increasing and decreasing power package accumulator fluid level</li> <li>• Removal and replacement of the motor assembly</li> <li>• Removal and replacement of the motor controller</li> <li>• Removal and replacement of the hydraulic pressure switch</li> <li>• Removal, replacement or repair of globe valves</li> <li>• Removal and replacement of stowage tank sight indicator</li> <li>• Removal and replacement of stowage tank level gauge</li> <li>• Removal and replacement of hydraulic relief valve</li> <li>• Operational test of hydraulic pressure switch</li> <li>• Operational test of hydraulic relief valve</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1, Section 32 (NAVAIR 51-5BBA-1.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 003 and 004 (NAVAIR 51-5BBA-2.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Package 038 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 32 (NAVAIR 51-5BCA-1.1)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects maintenance of the barricade power package and controls to include operation, preparation, and securing procedures. The removal and replacement of the motor, motor controller, hydraulic pressure switch, and relief valve, stowage tank sight indicator, and level gauge. You can also expect questions on the operational test of the hydraulic pressure switch and relief valve. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Repair arresting engine cylinder and ram assemblies
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Cylinder and ram operations</li> <li>• Removal and replacement of ram packing procedure</li> <li>• Removal and replacement of cylinder packing procedure</li> <li>• Removal and replacement of ram slippers procedure</li> <li>• Ram wiper replacement</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 004 and 016 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 27 (NAVAIR 51-5BCA-1.1)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of maintenance on the cylinder and ram assemblies. The questions may be of a general nature or specific to a procedure.

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair arresting engine cable anchor damper
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Anchor damper operations</li> <li>• Replacement of manifold tee o-ring procedure</li> <li>• Replacement of operating end head piping flange o-ring procedure</li> <li>• Replacement of retract valve piping flange o-ring procedure</li> <li>• Replacement of cushioning end head piping flange 0-ring procedure</li> <li>• Replacement of engine piping manifold piping flange copper gasket procedure</li> <li>• Fluid leakage test procedure</li> <li>• Replacement of cushioning piston rod gland packing procedure</li> <li>• Replacement of cushioning piston packing procedure</li> <li>• Replacement of operating piston rod gland packing procedure</li> <li>• Replacement of operating piston packing procedure</li> <li>• Alternate procedure for replacement of operating piston and rod packing</li> <li>• Replacement of pressure equalizing valve procedure</li> <li>• Replacement of rod head guide liners procedure</li> <li>• Limit switch replacement procedure</li> <li>• Three-way valve replacement procedure</li> <li>• Pilot valve replacement procedure</li> <li>• Flow control valve o-ring replacement procedure</li> <li>• Anchor damper coupling inspection procedure</li> </ul>

	<ul style="list-style-type: none"> <li>• Full-in position functional test</li> <li>• Full-out position functional test</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Package 004 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Package 027 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 22 (NAVAIR 51-5BCA-1.1)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance on the cable anchor damper to include o-ring and chevron packing replacement on the operation and cushioning end. You can also expect questions on the limit switch, three-way valve, and pilot valve replacement procedure. The questions may be of a general nature or specific to a procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair arresting engine crosshead and fixed sheave assemblies
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Arresting engine operation</li> <li>• High speed spacer wear measurement procedure</li> <li>• Sheave inspection and repair requirements</li> <li>• Crosshead upper and lower slipper liners replacement procedure and criteria</li> <li>• Crosshead gauge bracket, sheave guard and fairleads removal and reinstallation procedure</li> <li>• Crosshead cable guides inspection procedure</li> <li>• Crosshead cable guards inspection procedure</li> <li>• Fixed sheave gauge bracket, sheave guards, and fairleads removal and reinstallation procedure</li> <li>• Fixed sheave cable guides inspection procedures</li> <li>• Fixed sheave cable guards inspection procedure</li> <li>• Replacement criteria for radial thrust bearing sheave assembly</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 004, 014, and 015 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 25 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance on the crosshead and fixed sheave assembly to include high speed spacer wear, crosshead liners replacement, crosshead, and fixed sheave gauge bracket, sheave guard, and fairleads removal and reinstallation. You can also expect questions on the inspection of the crosshead and fixed sheave cable guides and cable guards. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	--

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Repair arresting engine fluid cooler
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Fluid cooler purpose and operation</li> <li>• Anti-corrosion anodes cleaning and inspection procedures</li> <li>• Anti-corrosion anodes removal and replacement procedures</li> <li>• Manifold gaskets replacement procedure</li> <li>• Head gasket replacement procedure</li> <li>• Testing and inspecting tubes for fluid leakage</li> <li>• Plugging fluid cooler tubes procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 003, 004, and 018 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 28 (NAVAIR 51-5BCA-1.1)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of the fluid cooler system to include anodes cleaning, inspection, and replacement, manifold, and head gasket replacement. You can also expect questions on plugging fluid cooler tubes, testing, and inspecting tubes for leaks. The questions may be of a general nature or specific to a type of procedure.



## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair arresting engine retract valve
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Retract valve operation</li> <li>• Removal and replacement of retract valve packing procedure</li> <li>• Spring tension adjustment procedure</li> <li>• Cable tension inspection and adjustment procedures</li> <li>• Plunger stroke adjustment procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 003, 004, 005, and 008 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Package 023 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 8 and 30 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of operation and maintenance on the retract valve to include packing replacement, plunger stroke adjustment procedure, spring, and cable tension measurements and adjustment procedure. The questions may be of a general nature or specific to a measurement or procedure.</p>
---	---

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery System Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair arresting engine fairleads and retractable sheaves
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Sheave inspection and repair requirements</li> <li>• Sheave groove gauging procedure</li> <li>• Disassembly of the fairlead sheave assembly</li> <li>• Sheave wear replacement criteria</li> <li>• Inspection of fairlead sheave components</li> <li>• Removal and disassembly of thru-deck sheave procedure</li> <li>• Retractable sheave emergency operation procedure</li> <li>• Disassembly of the retractable sheave assembly</li> <li>• Removal of motor unit and bonnet procedure</li> <li>• Removal of bonnet and shaft procedure</li> <li>• Disassembly of shaft assembly and screw procedure</li> <li>• Geared limit switch setting procedure</li> <li>• Torque limit switch setting procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 003 and 004 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 028 and 029 (NAVAIR 51-5BBA-2.2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 16 (NAVAIR 51-5BCA-1.1)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of inspection and maintenance of the fairleads and retractable sheaves to include sheave inspection requirements and criteria, retractable, and thru-deck sheave disassembly and reassembly, geared and torque limit switch setting procedure. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Repair arresting engine wire supports
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Periodic inspection and lubrication</li> <li>• Wire support leaf spring replacement procedure</li> <li>• Wire support minimum and maximum height</li> <li>• Wire support height adjustment procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 003, 004, and 009 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 12 (NAVAIR 51-5BCA-1.1)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of inspection and maintenance of wire supports to include leaf spring replacement, wire supports minimum and maximum height, and adjustment procedure. The questions may be of a general nature or specific to a procedure.

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair barricade stanchions and components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Procedures for removal and replacement of counterbalance cable assembly</li> <li>• Stanchions counterbalance spring compression adjustment procedure</li> <li>• Inspection criteria of the barricade tensioning cable</li> <li>• Barricade tensioning capability test procedure</li> <li>• Stanchion tensioning pendant removal and replacement procedure</li> <li>• Procedure for removal and replacement of deckedge hydraulic control valve</li> <li>• Procedures for disassembly and reassembly of stanchion winch assembly</li> <li>• Procedure for disassembly and reassembly of stanchion deck latch</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Package 037 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 33 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance on the barricade stanchions and components to include replacement of the counterbalance cable assembly, counterbalance spring compression adjustment, and tensioning pendant inspection criteria. You can also expect questions on the disassembly and reassembly of the stanchion winch and deck latch. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	---

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain arresting and barricade engines purchase cables and crossdeck pendant
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Crossdeck pendant inspection criteria</li> <li>• Crossdeck pendant replacement criteria</li> <li>• Purchase cable inspection/rejection criteria</li> <li>• Purchase cable inspection interval</li> <li>• Barricade engine purchase cable inspection/rejection criteria</li> <li>• Barricade purchase cable replacement procedure</li> <li>• Arresting engine purchase cable replacement procedure</li> <li>• Arresting engine hand reeving procedure</li> <li>• Procedures for pouring, testing, and inspecting purchase cable terminals</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1, Section 8, 17, and 18 (NAVAIR 51-5BBA-1.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Package 005 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 033, 034, 035, and 036 (NAVAIR 51-5BBA-2.2)</li> </ul>



	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 8, 17, and 18 (NAVAIR 51-5BCA-1.1)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the inspection and replacement criteria for the purchase cable and crossdeck pendant, purchase cable replacement procedure for arresting and barricade engines, hand reeving procedures, and procedures for pouring, testing, and inspecting purchase cable terminals. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair constant runout valve (CROV) and drive system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Repair and replacement procedures for the components of the CROV</li> <li>• Disconnect, remove, and install pendant drive cables procedures</li> <li>• Removal of cable guards and cover plates procedures</li> <li>• Reassembly of cable guards and cover plates procedures</li> <li>• Removal and disassembly of adjustable cable anchor procedures</li> <li>• Reassembly and replacement of adjustable cable anchor procedures</li> <li>• Procedures for disassembly and reassembly of pulley assemblies</li> <li>• Removal and replacement of drive chains procedures</li> <li>• Tensioning drive cable procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 020 and 021 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 24 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of removal, disassembly, inspection, repair, and replacement procedures for the components of the constant runout control valve (CROV), and the removal, disassembly, inspection, repair, and replacement procedures for the components of the constant runout control valve (CROV) drive system. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	---

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Conduct quality assurance inspection on aircraft launching and recovery equipment
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft launch and recovery equipment maintenance program objective, policy, and responsibility</li> <li>• Responsibilities of a Collateral Duty Inspector (CDI)</li> <li>• Responsibilities of a Quality Assurance Inspector (QAI)</li> <li>• Responsibilities of a Collateral Duty Quality Assurance Inspector (CDQAI)</li> <li>• Maintenance control functions and responsibilities</li> <li>• Material control functions and responsibilities</li> <li>• Maintenance support functions and responsibilities</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Launch and Recovery Equipment Maintenance Program (ALREMP), Chapters 2, 9, 10, 11, and 12 (OPNAVINST 4790.15)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of aircraft launch and recovery equipment maintenance program to include quality assurance branch, maintenance control branch, material control branch, maintenance support branch, and the workcenter branches of V-2 division. The questions may be of a general nature or specific to a function or procedure.

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Conduct catapult operations using deckedge control panels
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Components of catapult steam system</li> <li>• Operation of catapult steam system</li> <li>• Components of catapult launching engine system</li> <li>• Operation of catapult launching engine system</li> <li>• Component of catapult retraction engine and drive system</li> <li>• Operation of catapult retraction engine and drive system</li> <li>• Components catapult hydraulic system</li> <li>• Operation of catapult hydraulic system</li> <li>• Components of catapult lubrication system</li> <li>• Operation of catapult lubrication system</li> <li>• Components of catapult bridle tensioning system</li> <li>• Operation of catapult bridle tensioning system</li> <li>• Components of catapult control system</li> <li>• Operation of catapult control system</li> <li>• Components of nose gear launch system</li> <li>• Operation of nose gear launch system</li> <li>• Operation of catapult weight board</li> <li>• Operation of aircraft holdback assemblies</li> <li>• Types of aircraft holdback assemblies</li> <li>• Sequence of catapult operations</li> <li>• Catapult operating procedures</li> <li>• Catapult hangfire procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• CV NATOPS Manual, Chapter 4 (NAVAIR 00-80T-105)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Packages 008, 009, 010 and 011 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 015 (NAVAIR 51-15ABB-4.2)</li> <li>• Organizational/ Intermediate Maintenance With Illustrated Parts Breakdown, Capacity Selector Valve, Work Packages 003 and 004 (NAVAIR 51-15ABE-1)</li> <li>• Operation, Service, And Overhaul Instructions With Illustrated Parts Breakdown, Catapult Power Plant Pump, Section 4 (NAVAIR 51-25-3)</li> <li>• Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0, Sections 1, 2, and 3 (NAVAIR 51-25-19)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 3 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of catapult operation to include operating procedures, sequence of operations, hangfire procedures, and types of holdback assemblies. You can also expect questions on operations and components of the catapult steam, launching engine, hydraulic, lubrication, bridle tensioning, control, nose gear launch, retraction engine, and drive systems. The questions may be of a general nature or specific to a system or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Conduct emergency lowering of Jet Blast Deflectors (JBDs)
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• JBDs day and night operations procedures</li> <li>• Emergency operation procedure for electrical control failure</li> <li>• Emergency operation procedure for hydraulic control failure</li> <li>• Minimum and maximum time to lower JBDs during emergency operations</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operation, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Jet Blast Deflector, Mark 7 Mod 0, Mark 7 Mod 1 And Mark 7 Mod 2, Section 4 (NAVAIR 51-70-3)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 3 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of emergency lowering of JBDs to include minimum and maximum time to lower, and emergency operation procedures. The questions may be of a general nature or specific to a procedure.

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair catapult main hydraulic accumulator
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Main hydraulic accumulator troubleshooting procedure</li> <li>• Removal and reinstallation procedures of the volume normal limit switch</li> <li>• Removal, disassembly, reassembly, and reinstallation procedures of the volume normal actuator assembly</li> <li>• Removal, disassembly, reassembly, and reinstallation procedures of the piston assembly</li> <li>• Removal, disassembly, reassembly, and reinstallation procedures of the stroke control actuator assembly</li> <li>• Volume normal limit switch adjustment procedure</li> <li>• Stroke control actuator assembly adjustment procedure</li> <li>• Post maintenance test procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Sections 2 and 4 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> </ul>



	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3, Work Package 070 (NAVAIR 51-15ABB-4.3)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Sections 2 and 4 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Sections 3 and 5 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of disassembly, repair, reassembly reinstallation, and post maintenance testing of the main hydraulic accumulator. The questions may be of a general nature or specific to a procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair catapult nose gear launch assembly
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Removal and reinstallation procedure for the approach track</li> <li>• Removal and reinstallation procedure for the buffer cylinder track</li> <li>• Removal and reinstallation procedure for the aft slide access track</li> <li>• Removal, inspection, and reinstallation procedure of the forward slide access track</li> <li>• Removal and reinstallation for the forward track</li> <li>• Removal, disassembly, inspection, repair, reassembly, and reinstallation procedures for the slide assembly</li> <li>• Removal, disassembly, inspection, repair, reassembly, and reinstallation procedures for the reset assembly</li> <li>• Removal, disassembly, inspection, repair, reassembly, and reinstallation procedures for the buffer cylinder assembly</li> <li>• Removal, inspection, and reinstallation procedure for the shock absorber</li> <li>• Removal, disassembly, inspection, repair, reassembly, and reinstallation procedures for the tensioner cylinder assembly</li> <li>• Removal, inspection, replacement and reinstallation procedure for the tensioner limit switch</li> <li>• Removal, disassembly, inspection, repair, reassembly, and reinstallation procedures for the components of the valve manifold assembly</li> </ul>

	<ul style="list-style-type: none"> <li>• Removal, disassembly, inspection, repair, reassembly, and reinstallation procedures for the buffer accumulator assembly</li> </ul>
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0, Sections 4 and 5 (NAVAIR 51-25-19)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance on the nose gear launch assembly. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair catapult retraction engine and drive system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Retraction engine troubleshooting procedure</li> <li>• Hydraulic motor and coupling removal and reinstallation procedure</li> <li>• Hydraulic motor to manifold o-ring replacement procedure</li> <li>• Traverse carriage slippers replacement procedure</li> <li>• Procedure for the removal, inspection, and replacement of the drum anchor assembly components</li> <li>• Cable clamp removal and reinstallation</li> <li>• Relief valve replacement procedure</li> <li>• Check valve replacement procedure</li> <li>• Pressure gauge and snubber replacement procedure</li> <li>• Drive system cables replacement procedure</li> <li>• Removal and replacement of drive system lead sheaves</li> <li>• Grab assembly removal and replacement procedure</li> <li>• Grab latch replacement procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 5 (NAVAIR 51-15ABB-2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3, Work Packages 062, 063, 064, 065, and 085 (NAVAIR 51-15ABB-4.3)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 5 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 6 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of inspection and maintenance of the retraction engine subassembly and drive system to include the hydraulic motor, traverse carriage, drive system cables, and the grab. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair catapult retraction engine control valves
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Advance and retract pilot valve removal, disassembly, reassembly, and reinstallation procedure</li> <li>• Bridle tensioner pilot valve removal, disassembly, reassembly, and reinstallation procedure</li> <li>• Maneuvering valve removal, disassembly, reassembly, and reinstallation procedure</li> <li>• Advance and retract directional valves removal, , disassembly, reassembly, and reinstallation procedure</li> <li>• Inlet and outlet bypass valve and o-rings removal and replacement procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 5 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3, Work Packages 071, 072, 073, 074, and 075 (NAVAIR 51-15ABB-4.3)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 5 (NAVAIR 51-15ABC-2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 6 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance of the advance and retract pilot valve, bridle tensioner pilot valve, maneuvering valve, advance and retract directional valves and the inlet and outlet bypass valve. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Repair catapult retraction engine cable tensioner assemblies
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Removal, repair, and reinstallation procedure for the guide rails, guide blocks, and clevis assembly</li> <li>• Removal, repair, and reinstallation for the cable tensioner sheave assembly</li> <li>• Removal, repair, and reinstallation for the twin mounted sheave assembly</li> <li>• Removal, repair, and reinstallation procedure for the cable tensioner cylinder head</li> <li>• Removal, repair, and reinstallation procedure for the cable tensioner piston, piston rod, and tailrod</li> <li>• Cable tensioner hydraulic accumulator packing replacement procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 5 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3, Work Packages 079, 080, 081, 082, and 083 (NAVAIR 51-15ABB-4.3)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 5 (NAVAIR 51-15ABC-2)</li> </ul>



	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 6 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of removal, repair, and reinstallation procedure for the cable tensioner assembly and components. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair catapult retraction engine control panels
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Lamp bulb replacement procedure</li> <li>• Lens replacement procedure</li> <li>• Housing assembly replacement procedure</li> <li>• Low pressure air pressure switch removal and replacement procedure</li> <li>• Lube pump pressure switch removal and replacement procedure</li> <li>• Bridle tension air pressure switch removal and replacement procedure</li> <li>• Hydraulic fluid pressure switch removal and replacement procedure</li> <li>• Hydraulic fluid pressure switch adjustment procedure</li> <li>• Low pressure air pressure switch adjustment procedure</li> <li>• Lube pump pressure switch adjustment procedure</li> <li>• Nose gear launch air charging or air blowdown valve removal and replacement</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 6 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3, Work Packages 053, 054, 055 (NAVAIR 51-15ABB-4.3)</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 6 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 7 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of troubleshooting and maintenance of the retraction engine control panels to include switches lamp, lens, and housing replacement procedures, low pressure air, lube, bridle tension, and hydraulic fluid pressure switches replacement procedures. You can also expect questions on hydraulic, low-pressure air, and lube pump pressure switched adjustment procedures. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Repair catapult shuttle
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Removal and reinstallation procedure for shuttle assembly</li> <li>• Removal and reinstallation procedure for forward and aft guides</li> <li>• Removal and reinstallation procedure for rollers</li> <li>• Removal and reinstallation procedure for clevis assembly</li> <li>• Inspection criteria for forward and aft guides</li> <li>• Inspection criteria for rollers</li> <li>• Inspection criteria for clevis assembly</li> <li>• Inspection criteria for shuttle frame</li> <li>• Inspection criteria for nose gear launch spreader</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 014, 021, and 040 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and inspection of the catapult shuttle to include forward and aft guides, rollers, clevis assembly, shuttle frame, and nose gear launch spreader. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot and repair jet blast deflector cooling water system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Probable cause, if the red cooling water pressure indicator light comes on</li> <li>• Probable cause, if the cooling water pressure gauge at the auxiliary control panel indicates 0 psi</li> <li>• Probable cause, if the cooling water pressure gauge at the auxiliary control panel indicates a pressure below minimum psi</li> <li>• Probable cause, if the red cooling water pressure indicator light comes on but the cooling water pressure gauge at the auxiliary control panel indicates normal operating pressure</li> <li>• Probable cause, if the red cooling water temperature indicator light comes on</li> <li>• Removal and replacement procedure for cooling modules</li> <li>• Removal and replacement procedure for tube assembly</li> <li>• Removal and replacement procedure for saltwater hose assembly</li> <li>• Removal and replacement procedure for swivel joint assembly</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operation, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Jet Blast Deflector, Mark 7 Mod 0, Mark 7 Mod 1, And Mark 7 Mod 2, Sections 7 and 9 (NAVAIR 51-70-3)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance on the jet blast deflectors cooling system to include cooling water malfunctions, temperature, and pressure. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	---

## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Repair jet blast deflector hydraulic system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Removal, repair, and reinstallation procedure for four-way control valve</li> <li>• Removal, repair, and reinstallation procedure for orifice plates</li> <li>• Removal and reinstallation procedure for cylinder hose assemblies</li> <li>• Probable cause, of hydraulic cylinder leaking at piston rod end</li> <li>• Removal, disassembly, repair, reassembly, and reinstallation procedure for hydraulic cylinder</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operation, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Jet Blast Deflector, Mark 7 Mod 0, Mark 7 Mod 1, And Mark 7 Mod 2, Sections 7 and 9 (NAVAIR 51-70-3)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of maintenance on the jet blast deflector hydraulic system to include the four-way control valve, orifice plates, hydraulic hoses, and cylinder. The questions may be of a general nature or specific to a type of equipment or procedure.



## Advancement Handbook for ABE2

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Evaluate non-destructive inspection on aircraft launch and recovery equipment
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Magnetic particle inspection purpose and capabilities</li> <li>• Magnetic particle inspection pre-and post cleaning methods</li> <li>• Magnetic particle inspection methods of nondestructive testing</li> <li>• Magnetic particle inspection portable field inspection technique</li> <li>• Magnetic particle inspection defect formation, interpretation and evaluation</li> <li>• Penetrant inspection purpose and capabilities</li> <li>• Advantages and disadvantages of penetrant inspection</li> <li>• Basic penetrant process</li> <li>• Penetrant pre-testing, cleaning, and post cleaning</li> <li>• Mechanism, properties, and application of penetrant</li> <li>• Penetrant removal method</li> <li>• Penetrant development process</li> <li>• Penetrant inspection defect interpretation</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Nondestructive inspection methods, Sections 2 and 6 (NAVAIR 01-1A-16)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the purpose, capabilities, method, and defect interpretation of magnetic particle and penetrant non-destructive inspections The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	--

## Part 3

### Advancement Handbook for ABE1

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor recovery systems operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Arresting engine operating procedures</li> <li>• Arresting engine drive system</li> <li>• Anchor damper operating procedures</li> <li>• Sheave damper operating procedures</li> <li>• Deckedge operating procedures</li> <li>• Primary fly operating procedures</li> <li>• Hook runner operating procedures</li> <li>• Crossdeck pendant inspection procedures</li> <li>• Purchase cable inspection procedures</li> <li>• Conditions of readiness</li> <li>• Arresting engine components</li> <li>• Arresting engine fluid level</li> <li>• Arresting engine operating pressure</li> <li>• Arresting engine control panel components</li> <li>• Anchor damper components</li> <li>• Sheave damper components</li> <li>• Sheave damper fluid level</li> <li>• Sheave damper operating pressure</li> <li>• Automatic lubrication components</li> <li>• Deckedge components</li> <li>• Deck gear arrangement</li> <li>• Wire support adjustment procedures</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 003, 004, 013, 014, 015, 016, 017, 018, and 019 (NAVAIR 51-5BBA-2.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 020, 021, 022, 023, 024, 025, 027, 028, 029, 031, 032, and 033 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 1, 3, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30 (NAVAIR 51-5BCA-1.1)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 4 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of arresting gear operations to include the arresting engine, anchor damper, sheave damper, deckedge, primary fly, hook runner, crossdeck pendant, and purchase cable inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot aircraft recovery systems malfunctions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Troubleshooting procedures for malfunctions associated with arresting engine installation and components</li> <li>• Troubleshooting procedures for malfunctions associated with arresting engine drive system installation and components</li> <li>• Troubleshooting procedures for malfunctions associated with sheave damper installation and components</li> <li>• Troubleshooting procedures for malfunctions associated with anchor damper installation and components</li> <li>• Troubleshooting procedures for malfunctions associated with barricade installation and components</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1, Section 33 (NAVAIR 51-5BBA-1.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Package 008 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 6, 14, 15, 16, 17, 18, 20, 21, 22, 24, 26, 28, 30, and 33 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of troubleshooting malfunctions associated with the arresting engine installation and components, arresting engine drive system installation and components, sheave damper installation and components, anchor damper installation and components, and the barricade installation and components. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	---

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor operations of emergency recovery equipment
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Barricade webbing systems</li> <li>• Barricade webbing components</li> <li>• Barricade rigging and de-rigging procedures</li> <li>• Barricade stanchions components</li> <li>• Barricade stanchions components operations</li> <li>• Barricade power package components</li> <li>• Barricade power package operations</li> <li>• Emergency recovery equipment pre/post operation procedures</li> <li>• Barricade stowage procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1, Sections 31, 32, 33, and 34 (NAVAIR 51-5BBA-1.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 004 and 012 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 037 and 038 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 31, 32, 33, and 34 (NAVAIR 51-5BCA-1.1)</li> </ul>



	<ul style="list-style-type: none"> <li>• Aircraft Launch And Recovery Operations Manual, Section 4 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of the emergency recovery equipment to include barricade installations, barricade webbing assembly and inspection, webbing shelf life, multiple release straps arrangement, barricade stanchions, stanchions control, barricade power package components and operations. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Coordinate quality assurance inspections on aircraft launching and recovery equipment
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Responsibilities of a Collateral Duty Inspector (CDI)</li> <li>• Responsibilities of a Quality Assurance Inspector (QAI)</li> <li>• Responsibilities of a Collateral Duty Quality Assurance Inspector (CDQAI)</li> <li>• Quality assurance functions and responsibilities</li> <li>• Maintenance control functions and responsibilities</li> <li>• Material control functions and responsibilities</li> <li>• Maintenance support functions and responsibilities</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Launch and Recovery Equipment Maintenance Program (ALREMP), Chapters 9, 10, 11, and 12 (OPNAVINST 4790.15)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of the aircraft launch and recovery equipment maintenance program to include quality assurance branch, maintenance control branch, material control branch, maintenance support branch, and the workcenter branches of V-2 division. The questions may be of a general nature or specific to a function or procedure.

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor arresting engine automatic lubrication systems repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Lubrication system description</li> <li>• Hose reel removal and replacement procedure</li> <li>• Primary distribution block (crosshead end) removal and replacement procedure</li> <li>• Primary distribution block (fixed sheave end) removal and replacement procedure</li> <li>• Solenoid valve and bracket assembly removal and replacement procedure</li> <li>• Lubrication pump and drum removal and replacement procedure</li> <li>• Lubricant filter removal and replacement procedure</li> <li>• Master distribution assembly removal and replacement procedure</li> <li>• Momentary contact switch and cam removal and replacement procedure</li> <li>• Lubricant controller removal and replacement procedure</li> <li>• Secondary distribution block (crosshead end) removal and replacement procedure</li> <li>• Secondary distribution block (fixed sheave end) removal and replacement procedure</li> <li>• Procedure for purging grease from automatic lubrication system</li> <li>• Hose reel post maintenance test procedure</li> <li>• Cam and momentary contact switch post maintenance test procedure</li> </ul>

<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 005 and 008 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Package 024 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 8 and 26 (NAVAIR 51-5BCA-1.1)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance on the automatic lubrication system to include the solenoid valve, filter, contact switch, cam, and hose reel. You can also expect questions on the master, primary, and secondary distribution blocks. The questions may be of a general nature or specific to a type of equipment.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor arresting gear engine room controls repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Weight selector operations</li> <li>• Constant Runout Valve (CROV) motor unit operation</li> <li>• Removal, inspection, and reinstallation procedure of CROV motor unit</li> <li>• Removal and installation of aircraft weight selector pointer and dial</li> <li>• Removal and installation procedure of torque limit switch</li> <li>• Adjustment of torque limit switch</li> <li>• Removal and installation procedure of geared limit switch</li> <li>• Adjustment of geared limit switch</li> <li>• Geared limit switch post maintenance test procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Package 022 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 21 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance on arresting gear engine room controls to include the CROV motor unit, torque, and geared limit switches. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	--

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor arresting engine sheave damper system repairs
Knowledge you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Sheave damper troubleshooting procedure</li> <li>• Sheave damper crosshead blocking procedure</li> <li>• Draining and filling the sheave damper accumulator</li> <li>• Buffer assembly filling procedure</li> <li>• Limit switch replacement procedure</li> <li>• Measuring, recording , and replacing crosshead slippers</li> <li>• Crosshead disassembly and reassembly procedure</li> <li>• Cap and piston disassembly and reassembly (standard method)</li> <li>• Cap and piston disassembly and reassembly (alternate method)</li> <li>• Flow control valve disassembly and reassembly procedure</li> <li>• Sheave damper accumulator hose replacement procedure</li> <li>• Sheave damper post maintenance test procedure</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 005 and 008 (NAVAIR 51-5BBA-2.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Package 031 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 8 and 15 (NAVAIR 51-5BCA-1.1)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of troubleshooting and maintenance of the arresting engine sheave damper assembly to include the buffer assembly, crosshead, flow control valve, accumulator, cap and piston assembly. You can also expect questions on the sheave damper post maintenance functional test. The questions may be of a general nature or specific to a type of equipment or procedure.</p>



## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Monitor arresting engine accumulator system repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Accumulator troubleshooting procedure</li> <li>• Inspection of accumulator and piston assembly</li> <li>• Accumulator piston packing replacement procedure</li> <li>• Accumulator nozzle disassembly and reassembly procedure</li> <li>• Accumulator post maintenance test procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 005, 008, and 017 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 8 and 20 (NAVAIR 51-5BCA-1.1)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of maintenance and troubleshooting of the arresting engine accumulator to include the inspection of the cylinder, piston packing replacement, and the nozzle unit. The questions may be of a general nature or specific to a type of equipment or procedure.

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor arresting engine cable anchor damper system repairs
Knowledge you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Anchor damper troubleshooting procedure</li> <li>• Replacement of manifold tee o-ring procedure</li> <li>• Replacement of operating end head piping flange o-ring procedure</li> <li>• Replacement of cushioning end head piping flange 0-ring procedure</li> <li>• Replacement of cushioning piston rod gland packing procedure</li> <li>• Replacement of cushioning piston packing procedure</li> <li>• Replacement of operating piston rod gland packing procedure</li> <li>• Replacement of operating piston packing procedure</li> <li>• Alternate procedure for replacement of operating piston and rod packing</li> <li>• Replacement of pressure equalizing valve procedure</li> <li>• Replacement of rod head guide liners procedure</li> <li>• Flow control valve o-ring replacement procedure</li> <li>• Fluid leakage test procedure</li> <li>• Battery positioner installation maintenance</li> <li>• Anchor damper coupling inspection procedure</li> <li>• Anchor damper post maintenance test procedure</li> </ul>

<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 005 and 008 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Package 027 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 8 and 22 (NAVAIR 51-5BCA-1.1)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the cable anchor damper to include o-ring and chevron packing replacement on the operation and cushioning end. You can also expect questions on the battery positioner and the cable anchor damper post maintenance test procedures. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Monitor arresting engine main engine cylinder and ram assemblies repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Main engine cylinder and ram troubleshooting procedure</li> <li>• Removal and replacement of ram packing procedure</li> <li>• Removal and replacement of elbow packing procedure</li> <li>• Removal and replacement procedure of main engine cylinder packing</li> <li>• Removal, inspection, and replacement procedure of ram slippers</li> <li>• Ram wiper replacement</li> <li>• Post maintenance test procedure of the main engine cylinder and ram assemblies</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 005, 008, and 016 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 8 and 27 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance on the cylinder and ram assemblies to include troubleshooting packing replacement, ram slippers inspection, and ram slippers replacement. You can also expect questions on the post maintenance test procedure of the main engine cylinder and ram. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	--

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor arresting engine fluid cooler assembly repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Fluid cooler assembly troubleshooting procedures</li> <li>• Anti-corrosion anodes cleaning and inspection procedures</li> <li>• Anti-corrosion anodes removal and replacement procedures</li> <li>• Manifold gaskets replacement procedure</li> <li>• Head gasket replacement procedure</li> <li>• Testing and inspecting tubes for fluid leakage</li> <li>• Fluid cooler tubes repair procedure</li> <li>• Post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 005, 008, and 018 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 8 and 28 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects maintenance and troubleshooting on the fluid cooler assembly to include anodes cleaning and inspection, head gasket replacement, fluid cooler tubes testing, inspection, and repair. You can also expect questions on the fluid cooler post maintenance test and inspection procedures. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	---

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor mark 7 mod 2 main engine cylinder and ram assemblies repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Main engine cylinder and ram troubleshooting procedure</li> <li>• Removal and replacement of ram packing procedure</li> <li>• Removal and replacement of elbow packing procedure</li> <li>• Removal and replacement procedure of main engine cylinder packing</li> <li>• Removal, inspection, and replacement procedure of ram slippers</li> <li>• Ram wiper replacement</li> <li>• Use of torque multiplier on the cylinder packing retainer nuts</li> <li>• Post maintenance test procedure of the main engine cylinder and ram assemblies</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 005, 008, and 016 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1, Sections 8 and 27 (NAVAIR 51-5BBA-1.1)</li> </ul>



<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance on the mark 7 mod 2 main engine cylinder and ram assemblies to include troubleshooting packing replacement and ram slipper inspection and replacement. You can also expect questions on the post maintenance test procedure of the main engine cylinder and ram. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	---

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor barricade power package and stanchions components repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Draining the hydraulic power package</li> <li>• Removal and replacement procedure for the motor assembly</li> <li>• Removal and replacement procedure for the motor controller</li> <li>• Removal and replacement procedure for the pressure switch</li> <li>• Procedures for removal and replacement of counterbalance cable assembly</li> <li>• Stanchions counterbalance spring compression adjustment procedure</li> <li>• Inspection criteria of the barricade tensioning cable</li> <li>• Barricade tensioning capability test procedure</li> <li>• Stanchion tensioning pendant removal and replacement procedure</li> <li>• Procedure for removal and replacement of deckedge hydraulic control valve</li> <li>• Procedures for disassembly and reassembly of stanchion winch assembly</li> <li>• Procedure for disassembly and reassembly of stanchion deck latch</li> <li>• Post maintenance test and inspection procedure for the stanchion components</li> <li>• Post maintenance test and inspection procedure for the power package</li> </ul>

<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 005, and 008 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 037 and 38 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 8, 32, and 33 (NAVAIR 51-5BCA-1.1)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance on the barricade power package, stanchions, and components to include replacement of the counterbalance cable assembly, counterbalance spring compression adjustment, and tensioning pendant inspection criteria. You can also expect questions on the disassembly and reassembly of the stanchion winch and deck latch. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor replacement of arresting engines purchase cables
Knowledge you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Purchase cable inspection/rejection criteria</li> <li>• Purchase cable inspection interval</li> <li>• Arresting engine purchase cable replacement procedure</li> <li>• Arresting engine hand reeving procedure</li> <li>• Procedures for pouring, testing, and inspecting purchase cable terminals</li> <li>• Purchase cable post maintenance test and inspection procedure</li> </ul>
References you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Package 005 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 033, 034, 035, and 036 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 8, 17, and 18 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of purchase cable repairs to include the inspection and replacement criteria for the purchase cable, purchase cable replacement procedure, hand reeving, and procedures for pouring, testing, and inspecting purchase cable terminals. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	--

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor rigging of the emergency recovery equipment
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Barricade webbing systems</li> <li>• Barricade webbing components</li> <li>• Barricade rigging and de-rigging procedures</li> <li>• Barricade stanchions components</li> <li>• Barricade stanchions components operations</li> <li>• Barricade power package components</li> <li>• Barricade power package operations</li> <li>• Deck ramp location</li> <li>• Deck ramp locking procedures</li> <li>• Check list for barricade rigging</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1, Sections 31, 32, 33, and 34 (NAVAIR 51-5BBA-1.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 004 and 012 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 037 and 038 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 31, 32, 33, and 34 (NAVAIR 51-5BCA-1.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Aircraft Launch And Recovery Operations Manual, Section 4 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of the emergency recovery equipment to include the barricade webbing installation, barricade power package components, and the barricade stanchions. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult pre-and post-operational inspection
Knowledge you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Components of catapult steam system</li> <li>• Operation of catapult steam system</li> <li>• Steam system pressures</li> <li>• Components of catapult launching engine system</li> <li>• Operation of catapult launching engine system</li> <li>• Launching engine pre-charges and operating pressures</li> <li>• Component of catapult retraction engine and drive system</li> <li>• Operation of catapult retraction engine and drive system</li> <li>• Retraction engine pre-charge and operating pressures</li> <li>• Components of catapult hydraulic system</li> <li>• Operation of catapult hydraulic system</li> <li>• Hydraulic system operating pressure</li> <li>• Components of catapult lubrication system</li> <li>• Operation of catapult lubrication system</li> <li>• Components of catapult bridle tensioning system</li> <li>• Operation of catapult bridle tensioning system</li> <li>• Bridle tensioning system pre-charge and operating pressure</li> <li>• Components of catapult control system</li> <li>• Operation of catapult control system</li> <li>• Components of Digital Endspped Indicator System (DESI)</li> <li>• Operation of Digital Endspped Indicator System (DESI)</li> <li>• Components of nose gear launch system</li> </ul>



	<ul style="list-style-type: none"> <li>• Operation of nose gear launch system</li> <li>• Nose gear launch pre-charge and operating pressure</li> </ul>
<p><i>References you should study to gain the knowledge you need to perform this skill:</i></p>	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Packages 008, 009, and 010 (NAVAIR 51-15ABB-4.1)</li> <li>• Organizational/ Intermediate Maintenance With Illustrated Parts Breakdown, Capacity Selector Valve, Work Packages 003 and 004 (NAVAIR 51-15ABE-1)</li> <li>• Organizational/ Intermediate Operation, Service, And Maintenance Instructions With Illustrated Parts Breakdown, Digital Endspeed Indicator System, work packages 003 and 005 (NAVAIR 51-15ABE-2)</li> <li>• Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0, Sections 1, 2, and 3 (NAVAIR 51-25-19)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of catapult pre-and post-operation to include the operation, components, and pre-charges of the catapult steam system, launching engine system, hydraulic system, lubrication system, bridle tensioning system, nose gear launch system, and the retraction engine and drive system. You can also expect questions on the DESI and control system. The questions may be of a general nature or specific to a system or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Components of catapult steam system</li> <li>• Operation of catapult steam system</li> <li>• Components of catapult launching engine system</li> <li>• Operation of catapult launching engine system</li> <li>• Component of catapult retraction engine and drive system</li> <li>• Operation of catapult retraction engine and drive system</li> <li>• Components catapult hydraulic system</li> <li>• Operation of catapult hydraulic system</li> <li>• Components of catapult lubrication system</li> <li>• Operation of catapult lubrication system</li> <li>• Components of catapult bridle tensioning system</li> <li>• Operation of catapult bridle tensioning system</li> <li>• Components of catapult control system</li> <li>• Operation of catapult control system</li> <li>• Components of nose gear launch system</li> <li>• Operation of nose gear launch system</li> <li>• Operation of catapult weight board</li> <li>• Sequence of catapult operations</li> <li>• Catapult hangfire procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• CV NATOPS Manual, Chapter 4 (NAVAIR 00-80T-105)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Packages 008, 009, 010 and 011 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Package 015 (NAVAIR 51-15ABB-4.2)</li> <li>• Organizational/ Intermediate Maintenance With Illustrated Parts Breakdown, Capacity Selector Valve, Work Packages 003 and 004 (NAVAIR 51-15ABE-1)</li> <li>• Operation, Service, And Overhaul Instructions With Illustrated Parts Breakdown, Catapult Power Plant Pump, Section 4 (NAVAIR 51-25-3)</li> <li>• Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0, Sections 1, 2, and 3 (NAVAIR 51-25-19)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 3 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of catapult operation to include operating procedures, sequence of operations, and hangfire procedures. You can also expect questions on the operations and components of the catapult steam system, launching engine system, control system hydraulic system, lubrication system, bridle-tensioning system, nose gear launch system, and the retraction engine and drive system. The questions may be of a general nature or specific to a system or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor and evaluate emergency lowering of Jet Blast Deflectors (JBDs)
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Emergency operation procedure for electrical control failure</li> <li>• Emergency operation procedure for hydraulic control failure</li> <li>• Minimum and maximum time to lower JBDs during emergency operations</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operation, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Jet Blast Deflector, Mark 7 Mod 0, Mark 7 Mod 1 And Mark 7 Mod 2, Section 4 (NAVAIR 51-70-3)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 3 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of emergency lowering of JBDs to include minimum and maximum time to lower, and emergency operation procedures. The questions may be of a general nature or specific to a procedure.

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult bridle tensioning system repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Components of the bridle tensioning system</li> <li>• Bridle tensioning system troubleshooting procedure</li> <li>• Disassembly, repair, and reassembly procedure for the bridle tensioner control valve assembly</li> <li>• Removal, disassembly, inspection, reassembly, and reinstallation procedure for the pressure regulator</li> <li>• Removal, disassembly, repair, reassembly, and reinstallation procedure for the bridle tensioner pilot valve</li> <li>• Bridle tensioner relief valve setting procedure</li> <li>• Removal, disassembly, inspection, repair, reassembly, and reinstallation procedure for the tensioner cylinder</li> <li>• Bridle tensioning system post maintenance test procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Packages 004 and 012 (NAVAIR 51-15ABB-4.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 020 and 029 (NAVAIR 51-15ABB-4.2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3, Work Package 073 (NAVAIR 51-15ABB-4.3)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 5 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 6 (NAVAIR 51-15ABD-2)</li> <li>• Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0, Section 5 (NAVAIR 51-25-19)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the bridle tensioning system to include the tensioner control valve, cylinder, pressure regulator, and relief valve. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult exhaust valve repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Exhaust valve components</li> <li>• Exhaust valve troubleshooting procedure</li> <li>• Removal, disassembly, inspection, reassembly, and reinstallation of the actuator assembly</li> <li>• Hydraulic actuator cylinder repacking procedure</li> <li>• Removal and replacement procedure for the limit switch and cam</li> <li>• Removal and replacement procedure for the crankshaft external bushing</li> <li>• Hydraulic actuator assembly adjustment procedure</li> <li>• Exhaust valve limit switch adjustment procedure</li> <li>• Exhaust valve post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Package 038 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the catapult exhaust valve to include the hydraulic actuator, limit switch, cam, crankshaft external bushing, and post maintenance test and inspection. You can also expect questions on the hydraulic actuator and limit switch adjustment procedures. The questions may be of a general nature or specific to a type of equipment or procedure.</p>



## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult launching engine power cylinder, sealing strip tensioner, sealing strip anchor, and guide installation repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Launching engine cylinder troubleshooting procedure</li> <li>• Sealing strip tensioner troubleshooting procedure</li> <li>• Sealing strip anchor and guide installation troubleshooting procedure</li> <li>• Launching engine cylinder removal procedure</li> <li>• Launching engine cylinder slot width dimensional check procedure</li> <li>• Cylinder cover tie bolt removal and replacement procedure</li> <li>• Sealing strip adjustment procedure</li> <li>• Sealing strip replacement procedure</li> <li>• Sealing strip anchor and guide disassembly, inspection, repair, and reassembly procedure</li> <li>• Sealing strip tensioner disassembly, inspection, repair, and reassembly procedure</li> <li>• Launching engine cylinder post maintenance test and inspection procedure</li> <li>• Sealing strip anchor and guide installation post maintenance test and inspection procedure</li> <li>• Sealing strip tensioner post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 021, 023, and 024 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the catapult launching engine cylinders, sealing strip tensioner, sealing strip anchor and guide installation. You can also expect questions on launching engine cylinder, sealing strip tensioner, and the sealing strip anchor and guide installation post maintenance test and inspections. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult launching engine piston assembly repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Launching engine piston troubleshooting procedure</li> <li>• Disassembly, inspection, repair, and reassembly procedure for the piston guide</li> <li>• Disassembly, inspection, repair, and reassembly procedure for the steam piston</li> <li>• Disassembly, inspection, repair, and reassembly procedure for the sealing strip guide</li> <li>• Disassembly, inspection, repair, and reassembly procedure for the connector assemblies</li> <li>• Disassembly, inspection, repair, and reassembly procedure for the cylinder cover and gap seals</li> <li>• Piston barrel inspection procedure</li> <li>• Launching engine piston assembly post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Package 039 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the catapult launching engine piston assembly to include the steam piston, sealing strip guide, connectors, barrel, and the cylinder cover and gap seals. You can also expect questions on the launching engine piston assembly post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult lubrication system repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Lubrication system troubleshooting procedure</li> <li>• Lubrication pump motor removal and replacement procedure</li> <li>• Lubrication pump removal and replacement procedure</li> <li>• Coupling assembly removal and replacement procedure</li> <li>• Removal, disassembly, repair, reassembly, and reinstallation procedure for the metering pump assembly</li> <li>• Removal, disassembly, repair, reassembly, and reinstallation procedure for the air operated lubrication control valve assembly</li> <li>• Lubrication system pump set post maintenance test and inspection procedure</li> <li>• Metering pump post maintenance test and inspection procedure</li> <li>• Air operated lubrication control valve post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 025, 026, and 028 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the catapult lubrication system to include the pump, pump motor, coupling, and the metering pump. You can also expect questions on the lubrication system post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult main hydraulic accumulator repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Removal, repair, and reinstallation procedure of the volume normal limit switch</li> <li>• Removal, disassembly, reassembly, and reinstallation procedures of the volume normal actuator assembly</li> <li>• Removal, disassembly, reassembly, and reinstallation procedures of the piston assembly</li> <li>• Removal, disassembly, reassembly, and reinstallation procedures of the stroke control actuator assembly</li> <li>• Main hydraulic accumulator post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 4 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3, Work Package 070 (NAVAIR 51-15ABB-4.3)</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 4 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 5 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the main hydraulic accumulator to include the volume normal actuator assembly, volume normal limit switch, stroke control actuator, and the piston assembly. You can also expect questions on the main hydraulic accumulator post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>



## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult nose gear launch assembly repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Nose gear launch troubleshooting procedure</li> <li>• Removal, disassembly, inspection, repair, reassembly, and reinstallation procedure of the components of the nose gear launch assembly</li> <li>• Nose gear launch assembly post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0, Sections 4 and 5 (NAVAIR 51-25-19)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of maintenance and troubleshooting of the catapult nose gear launch assembly to include the guide tracks, slide assembly, reset assembly, shock absorber, buffer accumulator, and the valve manifold. You can also expect questions on the nose gear launch post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult retraction engine and drive system repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Retraction engine and drive system troubleshooting procedure</li> <li>• Hydraulic motor and coupling removal and reinstallation procedure</li> <li>• Traverse carriage slippers replacement procedure</li> <li>• Drive system cables replacement procedure</li> <li>• Removal and replacement of drive system lead sheaves</li> <li>• Grab assembly removal and replacement procedure</li> <li>• Grab latch replacement procedure</li> <li>• Advance and retract pilot valve removal, disassembly, repair, reassembly, and reinstallation procedure</li> <li>• Bridle tensioner pilot valve removal, disassembly, repair, reassembly, and reinstallation procedure</li> <li>• Maneuvering valve removal, disassembly, repair, reassembly, and reinstallation procedure</li> <li>• Advance and retract directional valves removal, disassembly, repair, reassembly, and reinstallation procedure</li> <li>• Reeve retraction engine drive system cables</li> <li>• Retraction engine and drive system post maintenance test and inspection procedure</li> </ul>

<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 5 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3, Work Packages 062, 063, 064, 065, and 085 (NAVAIR 51-15ABB-4.3)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 5 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 6 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the retraction engine and drive system to include the hydraulic motor, drive system cables, traverse carriage, grab, advance and retract pilot valve, maneuvering valve, and the advance and retract directional valve. You can also expect questions on the retraction engine and drive system post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult retraction engine cable tensioner assembly repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Cable tensioner assembly troubleshooting procedure</li> <li>• Removal, repair, and reinstallation procedure for the cable tensioner cylinder head</li> <li>• Removal, repair, and reinstallation procedure for the cable tensioner piston, piston rod, and tailrod</li> <li>• Cable tensioner post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 5 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3, Work Packages 079, 080, 081, 082, and 083 (NAVAIR 51-15ABB-4.3)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 5 (NAVAIR 51-15ABC-2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 6 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the cable tensioner assembly and components to include the cylinder head, piston, piston rod and tail rod. You can also expect questions on the cable tensioner post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult shuttle assembly repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Catapult shuttle assembly troubleshooting procedure</li> <li>• Removal and reinstallation procedure for shuttle rollers</li> <li>• Inspection criteria for forward and aft guides</li> <li>• Inspection criteria for rollers</li> <li>• Inspection criteria for clevis assembly</li> <li>• Inspection criteria for shuttle frame</li> <li>• Inspection criteria for nose gear launch spreader</li> <li>• Catapult shuttle assembly post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Package 040 (NAVAIR 51-15ABB-4.2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the catapult shuttle assembly to include forward and aft guides, rollers, clevis assembly, shuttle frame, and nose gear launch spreader. You can also expect questions on the catapult shuttle assembly post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult water brake assembly repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Catapult water brake assembly troubleshooting procedure</li> <li>• Excessive catapult endspeed inspection criteria</li> <li>• Water brake cylinder removal and replacement procedure</li> <li>• Choke ring removal and replacement procedure</li> <li>• Vane removal and replacement procedure</li> <li>• Removal, repair, and reinstallation procedure of the water brake control panel</li> <li>• Removal, repair, and reinstallation procedure of the water brake piping components</li> <li>• Removal, repair, and reinstallation procedure of the pressure switch installation</li> <li>• Catapult water brake assembly post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> </ul>



	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 021, 041, 042, and 043 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the catapult water brake assembly to include the choke ring, water brake cylinder, vane, control panel, and pressure switch. You can also expect questions on the water brake assembly excessive catapult endspeed inspection criteria, and post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Monitor jet blast deflector cooling water system repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Jet blast deflector cooling water system malfunctions</li> <li>• Removal and replacement procedure for cooling modules</li> <li>• Removal and replacement procedure for tubes assemblies</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operation, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Jet Blast Deflector, Mark 7 Mod 0, Mark 7 Mod 1, And Mark 7 Mod 2, Sections 7 and 9 (NAVAIR 51-70-3)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of the jet blast deflectors cooling water system to include cooling water malfunctions, temperature, and pressure. The questions may be of a general nature or specific to a type of equipment or procedure.

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Monitor jet blast deflector hydraulic system repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Removal, repair, and reinstallation procedure for four-way control valve</li> <li>• Removal, repair, and reinstallation procedure for orifice plates</li> <li>• Removal, disassembly, repair, reassembly, and reinstallation procedure for hydraulic cylinder</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operation, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Jet Blast Deflector, Mark 7 Mod 0, Mark 7 Mod 1, And Mark 7 Mod 2, Section 9 (NAVAIR 51-70-3)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of the jet blast deflector hydraulic system to include the four-way control valve, orifice plates, hydraulic hoses, and cylinder. The questions may be of a general nature or specific to a type of equipment or procedure.

## Advancement Handbook for ABE1

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor catapult launch valve assembly repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Launch valve assembly troubleshooting procedure</li> <li>• Removal disassembly, reassembly, and reinstallation procedure of hydraulic cylinder</li> <li>• Removal disassembly, repair, reassembly, and reinstallation procedure of hydraulic cylinder piston</li> <li>• Special procedure for replacement of hydraulic cylinder piston rod</li> <li>• Procedure for repacking of steam valve plug shafts</li> <li>• Disassemble, inspect, repair, reassemble, and test procedure of the launch valve piping installation</li> <li>• Removal, disassembly, repair, and reassembly procedure of the launch valve control valve and components</li> <li>• Launch valve control valve post maintenance test and inspection procedure</li> <li>• Launch valve post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 030, 031, 032, and 033 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and troubleshooting of the catapult launch valve assembly to include the hydraulic cylinder, steam valve plug shafts, launch valve piping installation, and launch valve control valve. You can also expect questions on the launch valve assembly post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Part 4

### Advancement Handbook for ABEC

## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Coordinate aircraft recovery systems operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Arresting engine operating procedures</li> <li>• Anchor damper operating procedures</li> <li>• Sheave damper operating procedures</li> <li>• Deckedge operating procedures</li> <li>• Primary fly operating procedures</li> <li>• Hook runner operating procedures</li> <li>• Arresting engine components</li> <li>• Arresting engine operating pressure</li> <li>• Anchor damper components</li> <li>• Sheave damper components</li> <li>• Sheave damper fluid level</li> <li>• Sheave damper operating pressure</li> <li>• Deckedge components</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 003, 004, 013, 014, 015, 016, 017, 018, and 019 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 020, 021, 022, 023, 024, 025, 027, 028, 029, 031, 032, and 033 (NAVAIR 51-5BBA-2.2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 1, 3, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, and 30 (NAVAIR 51-5BCA-1.1)</li> <li>• Aircraft Launch And Recovery Operations Manual, Section 4 (COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of aircraft recovery systems operation to include the arresting engine, cable anchor damper, sheave damper, deckedge, and primary fly. The questions may be of a general nature or specific to a type of equipment or procedure.</p>



## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Evaluate emergency procedure for broken purchase cable
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Purchase cable inspection and rejection criteria</li> <li>• Purchase cable inspection interval</li> <li>• Arresting engine purchase cable replacement procedure</li> <li>• Arresting engine hand reeving procedure</li> <li>• Procedures for pouring, testing, and inspecting purchase cable terminals</li> <li>• Purchase cable post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 033, 034, 035, and 036 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 17 and 18 (NAVAIR 51-5BCA-1.1)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of purchase cable repairs to include the inspection and replacement criteria for the purchase cable, purchase cable replacement procedure, hand reeving, and procedures for pouring, testing, and inspecting purchase cable terminals. The questions may be of a general nature or specific to a type of equipment or procedure.

## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Coordinate aircraft recovery equipment maintenance and repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Malfunctions associated with the arresting engine installation and components</li> <li>• Malfunctions associated with the arresting engine drive system installation and components</li> <li>• Malfunctions associated with the sheave damper installation and components</li> <li>• Malfunctions associated with the anchor damper installation and components</li> <li>• Malfunctions associated with the emergency recovery equipment and components</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Package 008 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 6, 14, 15, 16, 17, 18, 20, 21, 22, 24, 26, 28, 30, and 33 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and repairs associated with the arresting engine installation and components, arresting engine drive system installation and components, sheave damper installation and components, anchor damper installation and components, and the emergency recovery equipment and components. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	--

## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Recovery Systems Maintenance</b>
A <i>skill</i> you are expected to perform from the General Skill Area above:	Coordinate arresting engine crosshead and fixed sheave assemblies maintenance and repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• High speed spacer wear measurement procedure</li> <li>• Sheave inspection and repair requirements</li> <li>• Crosshead upper and lower slipper liners replacement procedure and criteria</li> <li>• Crosshead gauge bracket, sheave guard and fairleads removal and reinstallation procedure</li> <li>• Crosshead cable guides inspection procedure</li> <li>• Crosshead cable guards inspection procedure</li> <li>• Fixed sheave gauge bracket, sheave guards, and fairleads removal and reinstallation procedure</li> <li>• Fixed sheave cable guides inspection procedures</li> <li>• Fixed sheave cable guards inspection procedure</li> <li>• Replacement criteria for radial thrust bearing sheave assembly</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Packages 014 and 015 (NAVAIR 51-5BBA-2.1)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Section 25 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and repairs on the crosshead and fixed sheave assemblies to include high speed spacer wear, crosshead liners replacement, removal and reinstallation of the crosshead and fixed sheave gauge bracket, sheave guard, and fairleads. You can also expect questions on the inspection of the crosshead and fixed sheave cable guides and cable guards. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	--

## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Recovery Systems Operations</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Coordinate emergency recovery equipment maintenance and repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Barricade webbing systems</li> <li>• Barricade webbing components</li> <li>• Barricade stanchions components</li> <li>• Barricade stanchions operations</li> <li>• Barricade power package components</li> <li>• Barricade power package operations</li> <li>• Barricade stowage procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1, Sections 31, 32, 33, and 34 (NAVAIR 51-5BBA-1.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1, Work Package 012 (NAVAIR 51-5BBA-2.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2, Work Packages 037 and 038 (NAVAIR 51-5BBA-2.2)</li> <li>• Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1, Sections 31, 32, 33, and 34 (NAVAIR 51-5BCA-1.1)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and repair of the emergency recovery equipment to include the barricade webbing assembly, webbing shelf life, multiple release straps arrangement, barricade stanchions, stanchions control, barricade power package components and barricade power package operations. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	--

## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Coordinate catapult runaway shot repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Excessive catapult endspeed inspection criteria</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 021 and 041 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about all aspects of catapult runaway shot inspection and repairs. The questions may be of a general nature or specific to a type of equipment or procedure.



## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Launching Systems Operations</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Coordinate the filling, charging, and venting of the catapult hydraulic system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Procedure for filling the gravity tank with hydraulic fluid</li> <li>• Procedure for filling the components and lines with hydraulic fluid</li> <li>• Procedure for bringing the hydraulic system up to operating pressure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 7 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 011 (NAVAIR 51-15ABB-4.1)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 7 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 8 (NAVAIR 51-15ABD-2)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of filling, charging, and venting the catapult hydraulic system. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	--

## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Coordinate aircraft launching systems maintenance and repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Components of catapult steam system</li> <li>• Operation of catapult steam system</li> <li>• Components of catapult launching engine system</li> <li>• Operation of catapult launching engine system</li> <li>• Component of catapult retraction engine and drive system</li> <li>• Operation of catapult retraction engine and drive system</li> <li>• Components of catapult hydraulic system</li> <li>• Operation of catapult hydraulic system</li> <li>• Components of catapult lubrication system</li> <li>• Operation of catapult lubrication system</li> <li>• Components of catapult bridle tensioning system</li> <li>• Operation of catapult bridle tensioning system</li> <li>• Components of catapult control system</li> <li>• Operation of catapult control system</li> <li>• Components of nose gear launch system</li> <li>• Operation of nose gear launch system</li> <li>• Components of jet blast deflectors</li> <li>• Operation of jet blast deflectors</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Packages 008, 009, and 010 (NAVAIR 51-15ABB-4.1)</li> </ul>

	<ul style="list-style-type: none"> <li>• Organizational/ Intermediate Maintenance With Illustrated Parts Breakdown, Capacity Selector Valve, Work Packages 003 and 004 (NAVAIR 51-15ABE-1)</li> <li>• Organizational/ Intermediate Operation, Service, And Maintenance Instructions With Illustrated Parts Breakdown, Digital Endspeed Indicator System, work packages 003 and 005 (NAVAIR 51-15ABE-2)</li> <li>• Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0, Sections 1, 2, and 3 (NAVAIR 51-25-19)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of aircraft launching systems maintenance and repairs to include the operation and components of the catapult steam system, launching engine system, hydraulic system, lubrication system, bridle tensioning system, control system, nose gear launch system, and the retraction engine and drive system. The questions may be of a general nature or specific to a system or procedure.</p>

## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Coordinate catapult bridle tensioning system maintenance and repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Components of the bridle tensioning system</li> <li>• Bridle tensioning system troubleshooting procedure</li> <li>• Removal, disassembly, inspection, repair, reassembly, and reinstallation procedure for the bridle tensioning system components</li> <li>• Bridle tensioning system post maintenance test procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 020 and 029 (NAVAIR 51-15ABB-4.2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3, Work Package 073 (NAVAIR 51-15ABB-4.3)</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 5 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 6 (NAVAIR 51-15ABD-2)</li> <li>• Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0, Section 5 (NAVAIR 51-25-19)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and repairs of the bridle tensioning system to include the bridle tensioner control valve, cylinder, pressure regulator, and relief valve. You can also expect questions on bridle tensioning system post maintenance functional test. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Coordinate catapult launching engine power cylinder maintenance and repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Launching engine cylinder removal procedure</li> <li>• Launching engine cylinder slot width dimensional check procedure</li> <li>• Cylinder cover tie bolt removal and replacement procedure</li> <li>• Launching engine cylinder post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Package 021 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance and repairs of the catapult launching engine cylinders. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	--



## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Coordinate catapult exhaust valve maintenance and repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Exhaust valve troubleshooting procedure</li> <li>• Removal, disassembly, inspection, repair reassembly, and reinstallation of the actuator assembly</li> <li>• Removal and replacement procedure for the limit switch and cam</li> <li>• Removal and replacement procedure for the crankshaft external bushing</li> <li>• Exhaust valve limit switch adjustment procedure</li> <li>• Exhaust valve post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Package 038 (NAVAIR 51-15ABB-4.2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance, repair, and troubleshooting of the catapult exhaust valve to include the hydraulic actuator, limit switch, cam, crankshaft external bushing, and post maintenance test and inspection. You can also expect questions on the hydraulic actuator and limit switch adjustment procedures. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Coordinate catapult steam cutoff pressure switch maintenance and repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Steam cutoff pressure switch troubleshooting procedure</li> <li>• Removal and replacement procedure for the steam cutoff pressure switch components</li> <li>• Steam cutoff pressure switch post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Package 037 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance, repair, and troubleshooting of the catapult steam cutoff pressure switch, components, and post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>
---	---

## Advancement Handbook for ABEC

General ABE <i>Skill Area</i>	<b>Launching Systems Maintenance</b>
<i>A skill</i> you are expected to perform from the General Skill Area above:	Coordinate catapult water brake assembly maintenance and repairs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> <li>• Water brake assembly troubleshooting procedure</li> <li>• Water brake cylinder removal and replacement procedure</li> <li>• Removal, repair, and reinstallation of water brake cylinder components</li> <li>• Removal, repair, and reinstallation of water brake piping components</li> <li>• Catapult water brake assembly post maintenance test and inspection procedure</li> </ul>
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65, Section 3 (NAVAIR 51-15ABB-2)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1, Work Package 012 (NAVAIR 51-15ABB-4.1)</li> <li>• Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2, Work Packages 021, 041, and 043 (NAVAIR 51-15ABB-4.2)</li> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67, Section 3 (NAVAIR 51-15ABC-2)</li> </ul>

	<ul style="list-style-type: none"> <li>• Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75, Section 4 (NAVAIR 51-15ABD-2)</li> </ul>
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about all aspects of maintenance, repair, and troubleshooting of the catapult water brake assembly, and assembly components. You can also expect questions on the post maintenance test and inspection. The questions may be of a general nature or specific to a type of equipment or procedure.</p>

## Appendix 1

### References Used in This Advancement Handbook

<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABE3</b>	NAVAIR 00-80T-105	CV NATOPS Manual	Chapter 4	Note 1
	NAVAIR 51-5-BBA-1.1	Operation, Maintenance and Overhaul Instructions, Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1	Sections 31, 32, 33, & 34	Note 1
	NAVAIR 51-5BBA-2.1	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1	Work Packages HMWS, 003, 004, 012, 013, 014, 015, 016, 017, 018, & 019	Note 1
	NAVAIR 51-5BBA-2.2	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2	Work Packages 020, 021, 023, 024, 025, 026, 027, 028, 029, 031, 032, 033, 037, & 038	Note 1
	NAVAIR 51-5BCA-1.1	Operation, Maintenance and Overhaul Instructions, Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1	Sections 1, 2, 3, 4, 12, 13, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, & 33	Note 1
	NAVAIR 51-15ABB-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65	Sections 3 & 5	Note 1
	NAVAIR 51-15ABB-4.1	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1	Work Packages 008, 009, 010, & 011	Note 1

<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABE3 cont.</b>	NAVAIR 51-15ABB-4.2	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2	Work Packages 014 & 015	Note 1
	NAVAIR 51-15ABB-4.3	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3	Work Packages 062, 063, 064, 065, 066, 067, 071, 072, 073, 074, 075, 079, 080, 082, & 085	Note 1
	NAVAIR 51-15ABC-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67	Sections 3 & 5	Note 1
	NAVAIR 51-15ABD-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75	Sections 4 & 6	Note 1
	NAVAIR 51-15ABE-1	Organizational/ Intermediate Maintenance With Illustrated Parts Breakdown, Capacity Selector Valve	Work packages 003 & 004	Note 1
	NAVAIR 51-15ABE-2	Organizational/ Intermediate Operation, Service, And Maintenance Instructions With Illustrated Parts Breakdown, Digital Endspeed Indicator System	Work packages 003 & 005	Note 1
	NAVAIR 51-25-3	Operation, Service, And Overhaul Instructions With Illustrated Parts Breakdown, Catapult Power Plant Pump	Section 4	Note 1



<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABE3 cont.</b>	NAVAIR 51-25-19	Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0	Sections 1, 2, & 3	Note 1
	NAVAIR 51-70-3	Operation, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Jet Blast Deflector, Mark 7 Mod 0, Mark 7 Mod 1 And Mark 7 Mod 2	Sections 2, 3, 4, 5, 6, & 7	Note 1
	OPNAVINST 4790.4	Ships' Maintenance And Material Management (3-M) Manual	Chapters 3 & 4	Note 3
	OPNAVINST 4790.15	Aircraft Launch and Recovery Equipment Maintenance Program (ALREMP)	Chapter 10	Note 3
	OPNAVINST 5100.19	Navy Occupational Safety and Health (NAVOSH) Program Manual For Forces Afloat, Volume 1	Chapter B3	Note 3
	OPNAVINST 5100.19	Navy Occupational Safety and Health (NAVOSH) Program Manual For Forces Afloat, Volume 2	Chapters C12 & C23	Note 3
	OPNAVINST 5100.23	Navy Occupational Safety And Health (NAVOSH) Program Manual	Chapter 7	Note 3
	NAVSUP P-485	Naval Supply Procedures, Volume I, Afloat Supply	Chapters 2 & 3	Notes 1 & 2
	NAVSUP P-485	Naval Supply Procedures, Volume II, Supply Appendices	Appendices 1 & 2 Chapters 2 & 3	Notes 1 & 2
	COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1300.9	Aircraft Launch And Recovery Operations Manual	Sections 3 & 4	Note 4

<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABE3 cont.</b>		Hazardous Material User Guide		Note 5
<b>ABE2</b>	NAVAIR 00-80T-105	CV NATOPS Manual	Chapter 4	Note 1
	NAVAIR 01-1A-16	Nondestructive Inspection Methods	Sections 2 & 6	Note 1
	NAVAIR 51-5-BBA-1.1	Operation, Maintenance and Overhaul Instructions, Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1	Sections 8, 17, 18, 31, 32, 33, & 34	Note 1
	NAVAIR 51-5BBA-2.1	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1	Work Packages HMWS, 003, 004, 005, 008, 009, 012, 013, 014, 015, 016, 017, 018, & 019	Note 1
	NAVAIR 51-5BBA-2.2	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2	Work Packages 020, 021, 022, 023, 024, 025, 027, 028, 029, 031, 032, 033, 034, 035, 036, 037, & 038	Note 1
	NAVAIR 51-5BCA-1.1	Operation, Maintenance and Overhaul Instructions, Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1	Sections 1, 3, 6, 8, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 32, & 33	Note 1
	NAVAIR 51-15ABB-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65	Sections 2, 3, 4, 5, & 6	Note 1

<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABE2 cont.</b>	NAVAIR 51-15ABB-4.1	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1	Work Packages 008, 009, 010, 011 & 012	Note 1
	NAVAIR 51-15ABB-4.2	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2	Work Packages 014, 015, 021, & 040	Note 1
	NAVAIR 51-15ABB-4.3	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3	Work Packages 053, 054, 055, 062, 063, 064, 065, 070, 071, 072, 073, 074, 075, 079, 080, 081, 082, & 083	Note 1
	NAVAIR 51-15ABC-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67	Sections 2, 3, 4, 5, & 6	Note 1
	NAVAIR 51-15ABD-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75	Sections 3, 4, 5, 6, & 7	Note 1
	NAVAIR 51-15ABE-1	Organizational/ Intermediate Maintenance With Illustrated Parts Breakdown, Capacity Selector Valve	Work Packages 003 & 004	Note 1
	NAVAIR 51-25-3	Operation, Service, And Overhaul Instructions With Illustrated Parts Breakdown, Catapult Power Plant Pump	Section 4	Note 1

<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABE2 cont.</b>	NAVAIR 51-25-19	Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0	Sections 1, 2, 3, 4, & 5	Note 1
	NAVAIR 51-70-3	Operation, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Jet Blast Deflector, Mark 7 Mod 0, Mark 7 Mod 1 And Mark 7 Mod 2	Sections 4, 7, & 9	Note 1
	OPNAVINST 4790.15	Aircraft Launch and Recovery Equipment Maintenance Program (ALREMP)	Chapters 2, 9, 10, 11, & 12	Note 3
	OPNAVINST 5100.19	Navy Occupational Safety and Health (NAVOSH) Program Manual For Forces Afloat, Volume 1	Chapter B3	Note 3
	OPNAVINST 5100.19	Navy Occupational Safety and Health (NAVOSH) Program Manual For Forces Afloat, Volume 2	Chapters C12 & C23	Note 3
	OPNAVINST 5100.23	Navy Occupational Safety And Health (NAVOSH) Program Manual	Chapter 7	Note 3
	COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1 300.9	Aircraft Launch And Recovery Operations Manual	Sections 3 & 4	Note 4
		Hazardous Material User Guide		Note 5
<b>ABE1</b>	NAVAIR 00-80T-105	CV NATOPS Manual	Chapter 4	Note 1
	NAVAIR 51-5-BBA-1.1	Operation, Maintenance and Overhaul Instructions, Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1	Sections 27, 31, 32, 33, & 34	Note 1

<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABE1 cont.</b>	NAVAIR 51-5BBA-2.1	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1	Work Packages 003, 004, 005, 008, 012, 013, 014, 015, 016, 017, 018, & 019	Note 1
	NAVAIR 51-5BBA-2.2	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2	Work Packages 020, 021, 022, 023, 024, 025, 027, 028, 029, 031, 032, 033, 034, 035, 036, 037, & 038	Note 1
	NAVAIR 51-5BCA-1.1	Operation, Maintenance and Overhaul Instructions, Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1	Sections 1, 3, 6, 8, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, & 34	Note 1
	NAVAIR 51-15ABB-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65	Sections 3, 4, & 5	Note 1
	NAVAIR 51-15ABB-4.1	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1	Work Packages 004, 008, 009, 010, 011, & 012	Note 1
	NAVAIR 51-15ABB-4.2	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2	Work Packages 015, 020, 021, 023, 024, 025, 026, 028, 029, 030, 031, 032, 033, 038, 039, 040, 041, 042, & 043	Note 1

<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABE1 cont.</b>	NAVAIR 51-15ABB-4.3	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3	Work Packages 062, 063, 064, 065, 070, 073, 079, 080, 081, 082, & 083	Note 1
	NAVAIR 51-15ABC-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67	Sections 3, 4, & 5	Note 1
	NAVAIR 51-15ABD-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75	Sections 4, 5, & 6	Note 1
	NAVAIR 51-15ABE-1	Organizational/ Intermediate Maintenance With Illustrated Parts Breakdown, Capacity Selector Valve	Work Packages 003 & 004	Note 1
	NAVAIR 51-15ABE-2	Organizational/ Intermediate Operation, Service, And Maintenance Instructions With Illustrated Parts Breakdown, Digital Endspped Indicator System	Work Packages 003 & 005	Note 1
	NAVAIR 51-25-3	Operation, Service, And Overhaul Instructions With Illustrated Parts Breakdown, Catapult Power Plant Pump	Section 4	Note 1
	NAVAIR 51-25-19	Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0	Sections 1, 2, 3, 4, & 5	Note 1

<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABE1 cont.</b>	NAVAIR 51-70-3	Operation, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Jet Blast Deflector, Mark 7 Mod 0, Mark 7 Mod 1 And Mark 7 Mod 2	Sections 4, 7, & 9	Note 1
	OPNAVINST 4790.15	Aircraft Launch and Recovery Equipment Maintenance Program (ALREMP)	Chapters 9, 10, 11, & 12	Note 3
	COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1 300.9	Aircraft Launch And Recovery Operations Manual	Sections 3 & 4	Note 4
<b>ABEC</b>	NAVAIR 51-5-BBA-1.1	Operation, Maintenance and Overhaul Instructions, Aircraft Recovery Equipment, Mark 7 Mod 2, Volume 1	Sections 31, 32, 33, & 34	Note 1
	NAVAIR 51-5BBA-2.1	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 1	Work Packages 003, 004, 008, 012, 013, 014, 015, 016, 017, 018, & 019	Note 1
	NAVAIR 51-5BBA-2.2	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Aircraft Recovery Equipment, Volume 2	Work Packages 020, 021, 022, 023, 024, 025, 027, 028, 029, 031, 032, 033, 034, 035, 036, 037, & 038	Note 1
	NAVAIR 51-5BCA-1.1	Operation, Maintenance and Overhaul Instructions, Aircraft Recovery Equipment, Mark 7 Mod 3, Volume 1	Sections 1, 3, 6, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, & 34	Note 1

<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABEC cont.</b>	NAVAIR 51-15ABB-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-63, CV-64, And CV-65	Sections 3 & 7	Note 1
	NAVAIR 51-15ABB-4.1	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 1	Work Packages 008, 009, 010, 011, 012	Note 1
	NAVAIR 51-15ABB-4.2	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 2	Work Packages 020, 021, 029, 037, 038, 041, & 043	Note 1
	NAVAIR 51-15ABB-4.3	Operational And Organizational/ Intermediate Maintenance Manual With Illustrated Parts Breakdown For All Shipboard Steam Catapults, Volume 3	Work Package 073	Note 1
	NAVAIR 51-15ABC-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 And Type C Mark 13 Mod 1, CV-67	Sections 3, 5, & 7	Note 1
	NAVAIR 51-15ABD-2	Maintenance And Overhaul Instructions, Catapults, Type C Mark 13 Mod 1 For CVN68 through CVN71 And Type C Mark 13 Mod 2, For CVN72 through CVN75	Sections 4, 6, & 8	Note 1
	NAVAIR 51-15ABE-1	Organizational/ Intermediate Maintenance With Illustrated Parts Breakdown, Capacity Selector Valve	Work Packages 003 & 004	Note 1



<b>Rating</b>	<b>Short Title</b>	<b>Long Title</b>	<b>Chapters/ Paragraphs</b>	<b>Stocking Point</b>
<b>ABEC cont.</b>	NAVAIR 51-15ABE-2	Organizational/ Intermediate Operation, Service, And Maintenance Instructions With Illustrated Parts Breakdown, Digital Endspeed Indicator System	Work Packages 003 & 005	Note 1
	NAVAIR 51-25-19	Operation, Service, Maintenance And Overhaul Instructions With Illustrated Parts Breakdown, Nose Gear Launch Equipment, Mark 2 Mod 0	Sections 1, 2, 3, & 5	Note 1
	COMNAVAIRLANTINST 13800.3/ COMNAVAIRPACINST 1 300.9	Aircraft Launch And Recovery Operations Manual	Section 4	Note 4

**LEGEND:**

Note 1 - To order, MILSTRIP to NAVICP PHILA (Stock Number from NAVSUP P2002)  
or via INTERNET <http://www.nll.navsup.navy.mil>

Note 2 - NAVSUP P-600 (CD-ROM)

Note 3 - INTERNET - <http://neds.nebt.daps.mil/>

Note 4 - Fleet Publications Library CD-ROM  
Letter request to:  
Commanding Officer  
Attn CD-ROM Team Code N911  
NCTAMS LANT  
9625 Moffett Ave  
Norfolk, Va. 23511-2784

Note 5 - HMC&M/HMIS CD-ROM  
Letter request to:  
Commanding Officer  
ATTN: CD-ROM Team, Code N9113  
NCTAMS LANT  
9456 Fourth Avenue, Suite 215A  
Norfolk, Va. 23511-2199